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Telepsychiatry program eases patient crowding in the ED, expedites mental health services to patients and providers

Approach has particular appeal to EDs that lack access to in-house psychiatrists

Emergency departments have long struggled with how to manage patients who present with behavioral health concerns. Academic medical centers often have psychiatrists on site who can assess these patients, but many community hospitals lack such resources. And while case managers or social workers struggle to find an appropriate placement for these patients, patient flow can be adversely impacted, leading to patient boarding, excessive lengths-of-stay (LOS), and poorer outcomes.

EXECUTIVE SUMMARY

With funding from the Duke Endowment, the Albemarle Hospital Foundation in Elizabeth City, NC, implemented a telepsychiatry program aimed at decreasing patient backlogs in the health system's EDs, while also quickly connecting patients with needed mental health care. The approach has more than halved LOS for patients who are discharged to inpatient treatment facilities. The approach is also credited with reducing recidivism rates and the need for involuntary commitments. Now the state has announced plans to employ a similar approach statewide.

- Patients in the ED are connected with psychiatric providers at a remote location through the use of telemedicine carts that are equipped with wireless technology.
- With expedited psychiatric treatment, administrators say that nearly 30% of patients with involuntary commitment (IVC) orders stabilize to the point that their IVC orders can be rescinded and they can be discharged from the ED to outpatient care.
- Since the start of the pilot program in March of 2011, project administrators report that the average LOS in the ED for patients discharged to inpatient treatment facilities has decreased from 48 hours to 22.5 hours.

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A number of states and hospital systems are experimenting with potential solutions to this problem, but one pilot program in North Carolina is showing particular promise. With funding from the Duke Endowment, the Albemarle Hospital Foundation, based in Elizabeth City, NC, implemented a telepsychiatry program in seven Vidant Health hospitals in 2011, with the addition of several hospitals in 2012.

Since the start of the program in March of 2011, project administrators report that the average LOS in the ED for patients discharged to inpatient treatment facilities has decreased from 48 hours to 22.5 hours, and the approach has also made a sizable dent in both recidivism rates as well as the number of patients who require involuntary commitments to inpatient psychiatric facilities.

The results have been so impressive that the state is now set to invest $4 million to launch a two-year, statewide telepsychiatry program aimed at both reducing ED crowding and connecting ED patients with needed mental health care services expeditiously. Further, given the dearth of psychiatrists and mental health resources in many parts of the country, it's clear that the approach could prove appealing to other hospitals and EDs that are struggling with the same issues.

Provide access to psych evaluations

Sheila Davies, MPA, project director of telepsychiatry at the Albemarle Hospital Foundation, explains that one of the biggest strengths of the approach is that it enables emergency providers who are caring for patients who have presented to the ED with behavioral health problems to have the expert input from psychiatric evaluations at the point of disposition.

"Especially when patients come in with involuntary commitment (IVC) orders, the ED physicians are often nervous about lifting those orders. What if the patient walks out and hurts himself or someone else?" says Davies. "So now, providers have guidance from a psychiatrist or a psychiatric nurse practitioner on what they recommend for the patient and why. And they can provide all of the documentation to support that recommendation."

Another positive impact, says Davies, is that patients can get started on treatment for their psychological issues while they are still in the ED, and this can make a big difference in both costs and quality of life. "We are finding that in almost 30% of the cases [involving patients with IVCs], by day three, their IVCs can be lifted because now the patients are stabilized and they are no longer a threat to themselves or others," she explains. "Now, the patients really can just go for their follow-up treatment and stay in the community rather than having to become inpatients [in a psychiatric facility] for three to five days getting stabilized."

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Editorial Questions

For questions or comments, call **Leslie Hamlin**, (404) 262-5416.

Editor: **Dorothy Brooks** (dobr@bellsouth.net).
Managing Editor: **Leslie Hamlin** (leslie.hamlin@ahcmedia.com).
Executive Editor: **Shelly Morrow Mark** (shelly.mark@ahcmedia.com).
Interim Editorial Director: **Lee Landenberger** (lee.landenberger@ahcmedia.com).

Employ wireless technology

The way the process works is that when patients present to the ED, they are first seen and medically cleared by an emergency provider. "You want to first make sure that you are ruling out or addressing any physical conditions first before moving on to the psychiatric assessment," explains Davies. At this point in the process, the provider may then call for a psychiatric assessment, she adds.

For patients who have come to the ED voluntarily, ED staff will obtain verbal consent for the psychiatric assessment, and they will document that verbal consent has been obtained in the patient's medical record. No consent is required for patients who are under IVC orders, explains Davies.

Typically, nurses will make contact with the psychiatric provider and set up a time for the psychiatric consult. "The assessments are available seven days a week, from 8 a.m. until 6 p.m.," explains Davies. Practitioners from the Coastal Carolina Neuropsychiatric Center (CCNC) in Jacksonville, NC, provide the psychiatric evaluations.

Most of the participating hospitals have mobile telemedicine carts equipped with wireless technology so that they can be wheeled to any room in the ED, or even to the ICU, if necessary. Once the nurse has transported the telemedicine unit into a patient room, he or she will then make contact with CCNC to set up the consultation.

Participating hospitals handle the psychiatric assessments in different ways. In the vast majority of cases, there is no one in the room with the patient during the psychiatric assessment, says Davies. In some cases, there will be a staff person who stays just outside the door. In instances involving IVC orders, there will most likely be a law enforcement representative or a security person standing outside. "In a few cases, there may be someone who stays in the room with the patient, and this would be documented," says Davies. "A voluntary patient would have to consent for someone to be in the room. A patient under IVC orders would not have to consent, but there would have to be a legitimate reason why they would need to be there with the patient."

Centralize a base of expertise

Emergency departments that already have psychiatric resources at their disposal may have little interest in telepsychiatry, acknowledges Davies. But she notes that there has been high interest in the program from both smaller community hospitals and "good-sized" departments that may see as many as 40,000 to 48,000 patients a year, but have no in-house psychiatrist.

For example, the 19-bed ED at Carteret County General Hospital in Morehead City, NC, sees 42,000 patients a year, with psychiatric patients making up anywhere from 2% to 5% of the volume. But the hospital has no in-house behavioral health team or even a psychiatrist on call, explains **Rick Flinn**, RN, the ED director at Carteret.

"Those are great [resources], but they are costly because the work is not constant," explains Flinn. "There can be ups and downs each day. You can go from having 10 [behavioral health] patients one day to no patients the next, so if you have an in-house psychiatrist or a behavioral health team, what do those people do when there are no patients?"

Flinn has found the telepsychiatry program to be a much more cost-effective way to connect patients with the psychiatric services they need, and to provide emergency providers with the specialized psychiatric input they need to make informed decisions. "It works. We have had very limited issues with patients not wanting to participate in a telemedicine consultation," he says. "It provides real-time feedback from an expert in the field of psychiatry, and the program also offers placement services, so it allows your staff to continue to do ED nursing rather than to be on the phone looking for placement for these patients."

Having all this specialized, psychiatric expertise in one location offers advantages as well, explains Flinn, because it assembles a knowledge base of where the beds are and which inpatient psychiatric facilities handle adolescents or geriatrics. "You get that centralized, consolidated knowledge within one group that can spread it out to multiple hospitals," he says. "We really embraced the program from day one and never turned back. It has been a great service for us."

Consider technical, logistical hurdles

However, Flinn acknowledges that getting this type of program up and running at the hospital level requires considerable time and effort. In Carteret's case, the technological hurdles were significant. "We wanted to deploy the telepsychiatry [capabilities] not just in the ED, but throughout the [hospital] in case there was a psychiatric patient who was admitted for another reason but ultimately needed a psychiatric consult," he explains.

There were a number of obstacles involved

with facilitating the secured, wireless connections needed to carry out the psychiatric consultations, and in making sure that the psychiatric providers at CCNC had access to the hospital's electronic medical record system. "We really wanted to get rid of paper as much as possible, so we needed to work on a portal … so there wouldn't be so much faxing of information back and forth," explains Flinn. "Creating that portal required a lot of collaboration between the IT [information technology] people from the CCNC side as well as the hospital side."

Hospital administrators also had to do their due diligence in terms of looking at the credentials of the psychiatric providers as well as the mid-levels who would be doing the psychiatric assessments. "Going through the process, along with Sheila [Davies], was an important step in getting buy-in from our ED physicians that this was a step forward. Ultimately, they had a really strong comfort level with the expertise of this particular psychiatric group."

Once the medical staff were on board with the approach, the hospital needed to develop a protocol so that staff would be consistent in their approach of explaining the process to patients and carrying out the logistics of getting the psychiatric consults done, explains Flinn. "We created an operating manual specific for the hospital off of a template that Davies developed at the Albemarle Hospital Foundation," he says. "We were all hungry for an improved therapeutic level of consultation, so once we validated the type of report we would get, and we actually worked on the template of what their consultative report would actually look like and what it would provide to us as ED personnel … it was endorsed 100%."

Expedite care

In practice, Flinn notes that the approach brings a level of detail to the table that ED providers have not had in the past. This comes not just from the interviews that the psychiatric providers have with patients, but from collateral interviews they conduct with family members, friends, and co-workers. "We were really not used to that collateral investigation in real time as part of the initial review of the patient," says Flinn.

The expert consults also enable patients to get started on psychiatric medications right away. "Even though we don't let [psychiatric providers] do the actual orders, they make recommendations to start medication regimens in their consultations. Then the ED physician reviews those and actually does the order and management of that medication regimen," explains Flinn. "We used to give crisis drugs to de-escalate a situation. Now, we are actually getting patients on the medications they would be given in a behavioral health type of facility."

Patients tend to de-escalate more quickly when they are on the right medications, observes Flinn. "We have seen some overall decrease in LOS because we have actually been able to rescind a number IVC orders with that comfort level of a psychiatrist and an ED physician working together to assess the patient and determine the best course," he says.

What the psychiatric consults often provide is validation for the ED provider's viewpoint, indicating yes, the patient can be managed as an outpatient or no, the patient is not ready for outpatient care at this point, explains Flinn.

Make it sustainable

While the state telepsychiatry program is being modeled, in part, after the Albemarle Hospital Foundation effort, there will be some changes. For example, the primary provider hub for the state program will be East Carolina University's Center for Telepsychiatry and e-Behavioral Health in Greenville, NC, although Davies anticipates that there will ultimately be at least three provider hubs across the state. "I am helping to transition the 18 hospitals that we have in our network over to the ECU network," she explains. Once the transition occurs, Davies will work as a contractor for the state program, helping hospitals get established, training staff, and writing protocols for the new program. "I will have the same role that I have now, but on a much larger scale," she says.

Flinn is glad to see the approach being expanded. "We think that having this consistent across the state will give us more clout to continue to insure that we've got the right provider coverage and the right access points to this service, not just now, but into the future," he says. "If this has resources and funding at the state level, we think it is going to be even more sustainable." ■

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• **Sheila Davies**, MPA, Project Director, Telepsychiatry, Albemarle Hospital Foundation, Elizabeth City, NC. E-mail: sdavies@albermarlehealth.org.

• **Rick Flinn,** RN, ED Director, Carteret County General Hospital, Morehead City, NC. Phone: 252-808-6000.

New care model targets high-utilizing, complex patients, frees up emergency providers to focus on acute care concerns

Coordinated Care Center aims to better match resources with patient needs

While EDs are designed to respond to acute care needs, they are often inundated by patients with complex medical, social, and behavioral health problems that require comprehensive solutions. Not surprisingly, the results of this mismatch can involve long wait times, inefficient care, and less than satisfactory outcomes. Further, lacking good alternatives, many of these patients return to the ED time and time again, taking up expensive resources that are often not a good fit for their needs.

However, with new payment reforms on the horizon, some health care systems have taken steps to short-circuit such patterns of utilization and redirect these complex patients into care pathways that will better meet their needs. For example, Hennepin County Medical Center (HCMC) in Minneapolis, MN, is winning kudos for its Coordinated Care Center, a clinic located on the hospital campus that is rolling out the welcome mat for those very same high-utilizing patients who are well known to emergency providers and hospital staff.

Administrators say that while the infrastructure is not yet in place to make the model a financial winner, the approach is credited with slashing ED visits by 37% and inpatient care stays by 25% after one year of operation, according to the National Association of Public Hospitals (NAPH), which recently honored HCMC and its Coordinated Care Center (CCC) with the 2013 Gage Award for Improving Public Health. What's more, the model offers a glimpse of what can be accomplished when hospitals and EDs are tightly integrated with the kind of outpatient and community resources that complex patients need to stabilize and make progress.

Match resources to care needs

Troubling utilization patterns are what initially prompted administrators at HCMC to develop the CCC. They found that roughly 7% of the hospital's patients were responsible for 30% of the cost of care, and much of this expense was due to preventable hospital admissions and frequent ED visits. Administrators found that these high-utilizing patients were typically low-income adults with complex medical, social, or behavioral health problems.

Informed by these demographics, the CCC was set up to deliver the kind of comprehensive services that these patients need, explains **Lisa Fink**, RN, CNM, JD, the program practice manager for the CCC. "Our focus is on people who have a diagnosis that is primarily medical, such as CHF [congestive heart failure], COPD [chronic obstructive pulmonary disease], or diabetes," she says. "The way someone is eligible for care here is they have had three hospital admissions, and they are usually associated with lots of ED visits and very few visits to a primary care provider (PCP). They usually aren't hooked up with a PCP at all."

EXECUTIVE SUMMARY

Hennepin County Medical Center in Minneapolis, MN, has developed a new model of care, designed to meet the needs of high-utilizing hospital and ED patients with complex medical, social, and behavioral needs. The Coordinated Care Center (CCC) provides easy access to patients with a history of high utilization, and delivers multidisciplinary care in a one-stop-shop format. In one year, the approach has slashed ED visits by 37%, freeing up emergency providers to focus on patients with acute needs. In-patient care stays are down by 25%.

- The CCC focuses on patients with diagnoses that are primarily medical, such as CHF [congestive heart failure], COPD [chronic obstructive pulmonary disease], or diabetes.
- ED-based clinical coordinators keep an eye out for patients who world be good candidates for the CCC, and facilitate quick transitions when their needs would be better served in that setting.
- Administrators describe CCC as an ambulatory intensive care unit, with an on-site pharmacist, social worker, psychologist, and chemical health counselor as well as physicians, nurse practitioners, LPNs, and patient navigators — enough personnel to comprise two full care teams.
- While the model does not pay for itself under current payment models, administrators anticipate that the approach will work well under future payment reforms that focus on total cost of care.

Such patients are typically flagged by the health system's electronic health record at the point of admission. An RN clinical coordinator from the CCC will visit with a patient while he or she is still in the hospital, review the chart to make sure that the patient is a good candidate, and then invite the patient into the clinic; the patient will then come to the clinic for a discharge visit after he or she leaves the hospital, explains Fink.

Two RN clinical coordinators also keep an eye out for these high-utilizing patients at the point of triage in the ED at HCMC, a level 1 trauma facility that sees about 100,000 patients every year. "They are looking constantly for [new] patients, as well as identifying patients who are well-known to them," explains **Kathleen Moore**, RN, MSN, the nurse manager in the ED/urgent care center at HCMC. An emergency physician can also bring an ED-based clinical coordinator in on a case at the back end. Moore adds that the ED-based clinical coordinators are accessible in the hospital until 11 p.m., seven days a week, and they are on call 24/7.

When a patient is a good candidate for the CCC, the ED clinical coordinator will facilitate the transition right away if the patient's primary complaint can be better handled in that setting. "I really feel like we are getting the patients to where they need to be, and that they are also getting additional services that the ED wouldn't necessarily be able to provide," explains Moore. "Even if the patients are seen in the ED, the clinical coordinators are able to arrange all the things they will need as far as follow-up, which definitely better serves the patients."

Moore stresses that the ED-based clinical coordinators have made a huge impact in terms of freeing up emergency providers to take care of patients with acute care needs while also connecting patients with more appropriate sources for the care they will need following the ED visit. "In the past, I don't know that we did the best job we could do as far as [arranging] follow-up," says Moore. "We really were leaving patients with no other alternative than to be utilizing the ED."

Facilitate access, relationship-building

Those patients who meet the criteria to be seen by the CCC get plugged into the kind of multidisciplinary care that they have been lacking, even while heavily consuming inpatient and ED resources. Fink describes the CCC as an ambulatory intensive care unit, with an on-site pharmacist, social worker, psychologist, and chemical health counselor, as well as physicians, nurse practitioners, LPNs and patient navigators — enough personnel to comprise two full care teams.

"When patients come in they are usually here for 90 minutes or so. They will see either a physician or a nurse practitioner, and they also might see the psychologist. Then [the psychologist] might suggest that they also stop in and see the chemical health counselor because he might have some good resources for the patient," explains Fink. "It is like a one-stop shop. We even have a dental clinic one morning a week."

The social workers spend a lot of time connecting patients with housing because many of them are either homeless or living on someone's couch when they first come in, notes Fink. "It is such a critical piece to being able to stay healthy," she says.

"The individuals who come to our clinic have been frequent utilizers of the ED, and they certainly continue to use it some, so we have a relationship with the clinical coordinators there," explains Fink, noting that if a CCC patient presents to the ED for care, the ED clinical coordinators will be in touch. "One of us will walk over to the ED, and if the patient is stable enough to be seen in the CCC instead of the ED, then we will walk him back over to our clinic and see him here. There is a lot of back and forth communication."

Patients who agree to be seen in the CCC will receive guidance about when to use the CCC for care versus the ED, and they are given broad access. The CCC is open from 8 to 5 during weekdays, and patients can either make appointments or walk right in, explains Fink. Further, when patients need to contact the CCC, they are not funneled through the health system's general contact line; they call the CCC directly. "The person who picks up the phone, they probably know," says Fink. "For patients who have historically not trusted the health care system, and have not used it in a way that was most effective, we want to maximize the relationship-building, so we answer our own phones." In some instances, the CCC will also equip patients with phones, adds Fink.

While the CCC is currently not open in the evenings or on weekends, Fink says there will soon be a call system in place so that patients can reach a CCC provider during off hours. Even without the call system, though, Fink stresses that running the CCC requires tremendous flexibility on the part of staff. "It really is an ambulatory ICU. That's what a lot of people refer to it as," she says. "It is pretty intense with all of the comorbidities going on."

Take a broader view of health

The contributions of the two ED-based clinical coordinators have made a significant impact on the ED, explains Moore. While not all of the patients they intervene with require or qualify for care in the CCC, the clinical coordinators have been instrumental in matching patients with the specific resources they need. For example, Moore notes that in the past, a patient who was seen and treated for a wound in the ED would have had few options for follow-up other than to return to the ED for needed dressing changes. However, now the ED clinical coordinator steps in to arrange for this type of follow-up in an urgent care setting or another clinic that is accessible to the patient.

"They have been very instrumental [in eliminating] those repeat visits for things that clearly don't have to be looked at again by the ED staff, but definitely need to be done to obtain better patient outcomes," says Moore. "We want to grow our volume, but we want people to be in the right places. We want the people who are acutely ill and definitely in need of emergency services to have that fast response through our front door, so decreasing utilization for non-urgent visits is huge. It helps deliver better outcomes for the acutely ill."

Currently, the CCC cares for about 240 patients, although Fink anticipates that the number will grow significantly. "We know there are a lot more people out there who meet the criteria — heavy utilizers of the ED and inpatient use, and people we feel we could help," she says.

To accommodate growth, Fink acknowledges that the CCC needs more mental health practitioners and access to more community resources such as sober housing and respite care. "A lot of this is really a broader sense of what makes health," she says. "What we mostly need is a new payment model because we don't get paid for what we think makes the most difference, and that is real, on the ground, consuming care coordination. It takes a huge amount of time; it is not just a phone call once a month, but we can't bill for that."

However, Fink notes that HCMC is continuing to support the model with resources. And administrators believe the approach will pay off as payment reforms focus more on the total cost of care. "This is absolutely in line with where we are heading, but we are not there yet," she says. "This is quite a leap of faith. It is really about saying that this is the right thing to do." ■

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• **Lisa Fink**, RN, CNM, JD, Program Practice Manager, Coordinated Care Center, Hennepin County Medical Center, Minneapolis, MN. E-mail: lisa.fink@hcmed.org.
• **Kathleen Moore**, RN, MSN, Nurse Manager, Emergency Department/Urgent Care, Hennepin County Medical Center, Minneapolis, MN. Phone: 612-873-3000.

Study: Time for a new focus in QI efforts for STEMI patients

Mortality rate unchanged despite improvements in door-to-balloon times

Emergency medicine providers fully understand the importance of time-to-treatment when caring for ST-elevated myocardial infarctions (STEMI) patients. That's why quality improvement efforts have focused so intently in recent years on improving door-to-balloon times for patients suffering from STEMI, the most serious type of heart attack. However, now there is evidence that while it is important to maintain these improvements, further gains on this particular metric likely have diminishing returns in terms of reducing mortality.[1]

The latest findings come from an analysis led by the University of Michigan Frankel Cardiovascular Center of 100,000 STEMI admissions across the country, between 2005 and 2009, a period in which there was a national effort aimed at reducing door-to-balloon times. Over the course of the study, investigators report that the percentage of STEMI patients receiving care in 90 minutes or less improved from 59.5% to 83.1%, but there was no accompanying reduction in the mortality rate. It remained unchanged at 4.8%. While door-to-balloon times are relatively easy to measure and chart, investigators suggest it may now be time to focus improvement efforts on other factors.

Consider the pre-hospital phase

As the only hospital in Illinois with an interventional cardiology team on site 24 hours a day, Loyola University Medical Center in Maywood,

IL, has made exceptional strides in pushing down door-to-balloon times in STEMI patients. The average door-to-balloon time at the 50,000-visit-per-year ED was 56 minutes in 2012, and 53 minutes in the first half of 2013. This far exceeds the level of performance recommended by national guidelines, which state that hospitals should strive to provide angioplasties within 90 minutes of a patient's arrival in the ED.

However, **Fred Leya**, MD, the medical director of interventional cardiology at the hospital, agrees with study investigators that there is only so much tweaking that hospitals can do once patients arrive in the ED. He suggests, though, that more could be done to get patients to react more quickly to symptoms. "An average [heart attack] patient waits two hours outside the hospital, and only 60% of patients finally decide to call 911," he says. "We know that if we shorten ischemia time from the onset of chest pain, then definitely [the] mortality [rate] will be improved, so what we are trying to stress now is that the pre-hospital portion should be improved as much as we have improved the hospital response time."

This will require hospitals and public media to take ownership of the need to do a better job of educating the public about what to do in the case of chest pain, how to behave, and when to call 911, explains Leya. He stresses that there is a finite period of time to work with in preventing damage when a STEMI occurs. "On average, there is about 15 to 20 minutes of ischemia before an initial wave of necrosis starts inside the heart, and that gradually expands outward," says Leya. "That expansion process takes about two to four hours."

There is also room for improvement in the training of emergency providers to pick up on atypical symptoms of STEMI, especially in women, adds Leya. "We have seen women in their 40s and 50s come in complaining of nausea or abdominal pain. Physicians examine them and think it is stomach flu, but no one takes the time to do an EKG," he says. "There are a lot of things we need to keep in mind, but especially women need to be taken more seriously in the ED. Everyone is trained on the classic symptoms of STEMI, but we need to make doubly sure that providers are not missing signs of a heart attack in women." *(Also, see "Study: Chest pain symptoms less likely in younger women with acute coronary syndrome," p. 129.)*

Prepare for new challenges

While Loyola is able to maintain an interventional cardiology team on site, around the clock, thanks to a donor, not all hospitals have the financial resources or the need to maintain such resources. A better approach for many, says Leya, is for hospitals and EDs to establish a regional response system so that when paramedics have patients exhibiting signs of a STEMI, they will know to take them to hospitals that have the appropriate resources.

Leya also favors the establishment chest pain units in which physicians and nurses can maintain a high level of skill in identifying and treating STEMI and other conditions related to chest pain. Regardless of the specific setting, however, Leya emphasizes that everyone should have a process in place for measuring outcomes and taking steps to improve. "Cardiology and ED physicians, as well as program directors should sit together and mark what they are going to improve next," he says. "Take one thing at a time, but make sure you truly improve it."

Despite the clear gains in door-to-balloon times in recent years, connecting STEMI patients with appropriate care quickly is likely to become more challenging as more people gain access to health coverage, observes **Mark Cichon**, DO, FACEP, FACOEP, chair of the Department of Emergency Medicine at Loyola University Medical Center.

"As volumes of patients increase at EDs across the country ... we as physicians, nurses, and EDs need to work on identifying and accelerating care to those patients who present to us with time-

EXECUTIVE SUMMARY

A new study suggests that the ardent focus in recent years on reducing door-to-balloon times in STEMI patients has had little, if any, impact on the mortality rate. Investigators conclude that quality improvement efforts should now shift to other factors, such as public education regarding STEMI symptoms and response times during the pre-hospital phase.

- In an analysis of 100,000 STEMI admissions across the country, investigators found that the percentage of STEMI patients receiving care in 90 minutes or less improved from 59.5% to 83.1% between 2005 and 2009.
- Despite improvements in door-to-balloon times, the mortality rate remained unchanged at 4.8%.
- Experts suggest new quality improvement efforts should focus on getting patients to recognize and respond to STEMI symptoms more quickly. The average STEMI patient waits two hours before presenting to the hospital for care.

dependent emergencies like stroke, trauma, and MIs," notes Cichon. "Rapid evaluations in triage, rapid assessment teams, point-of-care testing, hand-held ultrasound devices, and newer innovations in EKGs are going to become more important." ■

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• **Mark Cichon**, DO, Chair, Department of Emergency Medicine, Loyola University Medical Center, Maywood, IL. E-mail: mcicho@lumc.edu.
• **Fred Leya**, MD, Medical Director, Interventional Cardiology, Loyola University Medical Center, Maywood, IL. Phone: 888-584-7888.

Study: Chest pain symptoms less likely in younger women with acute coronary syndrome

A study looking at presenting symptoms in younger patients diagnosed with acute coronary syndrome (ACS) found that while chest pain is the predominant symptom in both men and women, 19% of women and 13.7% of men presented without chest pain. Investigators, reporting in *JAMA Internal Medicine*, noted that while it is clear that chest pain should trigger diagnostic evaluation for ACS, health care practitioners should also maintain a high degree of suspicion for ACS in patients younger than age 55, especially with respect to women.[1]

Most of the participants in the study who presented without chest pain reported at least one other symptom such as shortness of breath, flushing, or tachycardia. Investigators report that only two factors were independently associated with presentation without chest pain: female gender and tachycardia. Still, chest pain was by far the most common symptom, reported by 86% of men and 81% of women.

The study involved an analysis of 1,015 patients, aged 55 and younger, who were hospitalized for ACS and who were enrolled in the ongoing GENESIS PRAXY study between January 2009 and September 2012; the median age was 49. Participants came from 24 centers in Canada, one center in the United States, and one in Switzerland. ■

REFERENCE
1. Khan N, Daskalopoulou S, Karp I, et al. Sex differences in acute coronary syndrome symptom presentation in young patients. *JAMA Internal Medicine* September 16, 2013. [Epub ahead of print].

Study: Observation is a good strategy when caring for children who present with minor blunt head trauma

Take some time to monitor symptoms before ordering CT scans

A new study strongly suggests that for children who present to the ED with minor blunt head traumas, a short period of observation can make an important difference in helping clinicians determine whether to order computed tomography (CT) scans or not.[1] In fact, researchers note that the longer a child with minor blunt head trauma remains on observation, the less likely that child is to require a CT scan.

"Observation is a great strategy because you can keep the child in the ED and, oftentimes, children who right after an injury are shaken up, have some symptoms that start to clear up after the initial episode," explains **Lise Nigrovic**, MD, MPH, a co-author of the study and a pediatric emergency physician at Boston Children's Hospital in Boston, MA. "If the symptoms worsen, you can always go and get a CT scan, but, in many cases, they get better."

This is important, says Nigrovic, because a period of observation can enable children to avoid the harmful effects of ionizing radiation that go along with CTs. "This is not about cost. There is a radiation risk to a child's growing brain," she explains. "Usually parents are pretty on board with [a decision to opt for observation] and are very

willing to wait so they can avoid a test that has a potential risk."

Further, the study authors stress that while more than 500,000 children per year present to EDs with blunt head trauma injuries, very few of these patients are found to have significant traumatic brain injuries.

Consider the evidence

In the single-center study, researchers performed a prospective observational cohort study of all the children who presented with minor blunt head trauma over a 20-month period, between April of 2011 and December of 2012. Emergency physicians observed about half of the 1,381 study participants before deciding whether to order CTs, and in most of these cases symptoms — ranging from abnormal mental status to vomiting and headache — improved during the observation period.

The researchers note that every hour of observation time was associated with a decrease in the CT rate for children in all three traumatic brain injury risk groups, as specified on the Pediatric Emergency Care Applied Research Network (PECARN) risk prediction tool for traumatic brain injury. Ultimately, just 5% of patients who were observed proceeded to undergo CT scans. Of the 705 patients who were not observed, 34% underwent immediate CT scans. A total of eight patients in the study had what the researchers describe as clinically important traumatic brain injuries. All of these children were classified as high risk, and none were observed before a CT decision was made.

While this study was relatively small, it follows a much larger study that found that the use of observation significantly reduces the use of CT scans in children who present with blunt head traumas. Nigrovic was the lead author on that study, which was published in 2011.[2]

Monitor symptoms, then decide

The strategy of using observation as a management strategy in these cases is particularly helpful to clinicians who are caring for patients who are neither low risk nor high risk, but rather somewhere in between, explains Nigrovic. "These are patients who may not be severely symptomatic when they come in, but they may have that one symptom that makes you think about them, and that is the perfect group for observation," she explains. "If you have to make a decision right away, you might think seriously about getting some neuro imaging, but if you have time, which I argue is a good strategy, oftentimes many of those children's symptoms will get better. And if they don't, you have the patients in a safe place where you can go to the next step."

Nigrovic adds that most CTs that are conducted on these types of patients are negative. "We are doing too many tests for the amount of injuries that these children actually have. This is one strategy to selectively CT those who have symptoms that worsen over time," she says.

While fear of litigation may play a role in driving up the use of CT in these cases, Nigrovic suggests that a bigger factor may be that physicians tend to overestimate the risk of a bad outcome. "Those bad cases stand out in your mind. They end up in case reports, so you overestimate," she says. "Medical decision-making is always complex."

EXECUTIVE SUMMARY

A new study bolsters earlier findings that children who present to the ED with minor blunt head trauma can benefit from a period of observation before physicians decide whether to order computed tomography (CT) scans. Researchers note that the strategy significantly reduces the number of CTs that are required in these cases, reducing the risks associated with exposure to ionizing radiation.

- In a single-center study, researchers compared children who were observed with children who were not observed prior to CT decisions being made. They found that every hour of observation time was associated with a decrease in the CT rate.
- Just 5% of the patients who were observed proceeded to undergo CT scans; 34% of the patients who were not observed underwent immediate CT scans.
- Researchers note that troubling symptoms such as headache, vomiting, or altered mental status often resolve with time, negating the need for a CT scan.
- While more than 500,000 children present to EDs in the United States each year with blunt head trauma injuries, very few are found to have significant traumatic brain injuries.

COMING IN FUTURE MONTHS

- Make the most out of post-discharge ED visits
- How EDs need to adapt to meet the needs of older patients
- Streamlining care of patients requiring detoxification and behavioral health services
- Major progress in the bid to get health care workers vaccinated

While the researchers did not determine how long a patient should remain in observation, Nigrovic suggests that the period of importance in these cases is generally four to six hours following the injury. "If a child comes in two hours after an injury and you decide you want to observe this patient, you may be watching him for two hours," she explains. "It is not long-term observation. There is no additional laboratory testing or things like that. They just need to be monitored and can be reassessed if things worsen." ■

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1. Schonfeld D, Fitz B, Nigrovic L. Effect of the duration of emergency department observation on computed tomography use in children with minor blunt head trauma. *Ann Emerg Med*. 2013. [Epub ahead of print]
2. Nigrovic L, Schunk J, Foerster A, et al. The effect of observation on cranial computer tomography utilization for children after blunt head trauma. *Pediatrics* 2011;127: 1067-1073.

SOURCE

• **Lise Nigrovic**, MD, MPH, Pediatric Emergency Physician, Boston Children's Hospital, Boston, MA. E-mail: lise.nigrovic@childrens.harvard.edu.

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3. Implement managerial procedures suggested by your peers in the publication. ■

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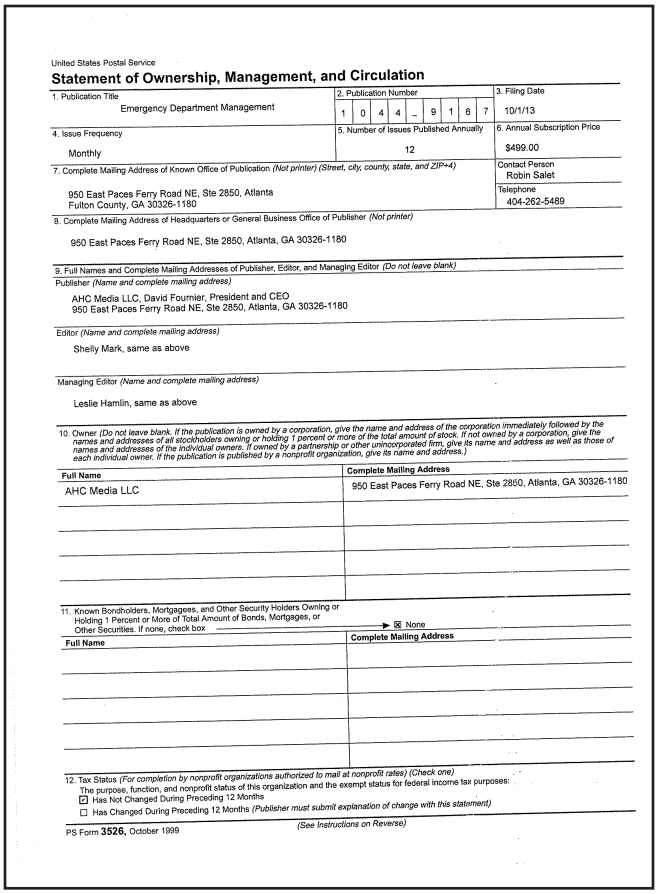

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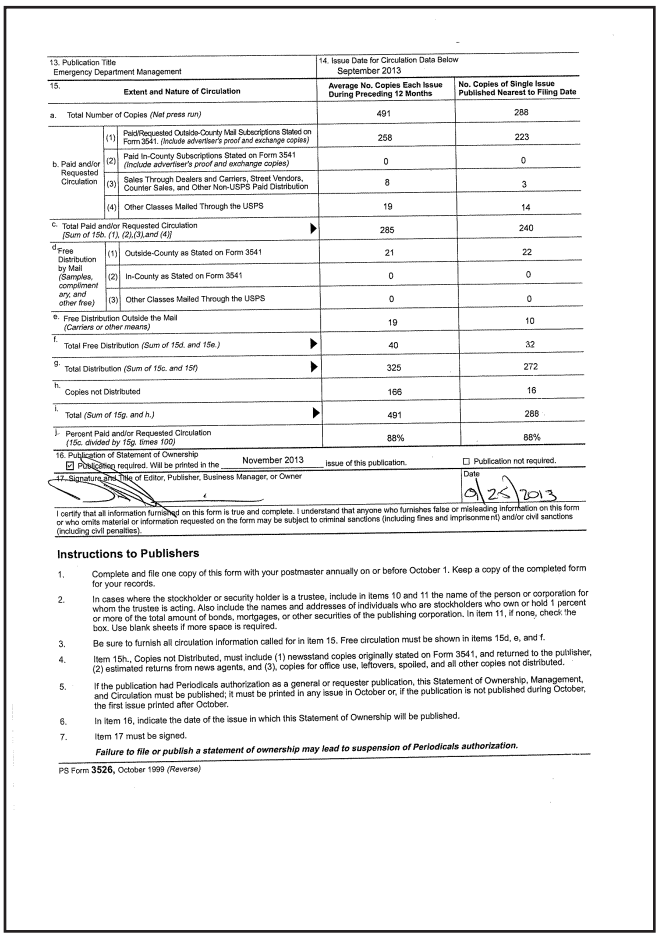

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